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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stephanie M. Whited

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UNION CARBIDE CHEMICALS AND PLASTICS TECHNOLOGY  
CORPORATION

P.O. BOX 1967

MIDLAND, MI 48641-1967

EXAMINER

LU, C CAIXIA

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,689	<b>Applicant(s)</b> WHITED ET AL.	
	<b>Examiner</b> Caixia Lu	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(i) The limitation of "the catalyst is partially preactivated in step (5) for about 10 minutes to about 60 minutes prior to the transferring step (6)" is not supported by the indicated section of lines 24-26 of page 13 in the specification. The indicated section in the specification is describing the time between the two additions of the activators for partially activating the catalyst precursor. Furthermore, Example 5 does not provide full support for the generic scope of claim 12 for the pre-activation time limitation of "15 minutes to about 45 minutes" for all activators.

(ii) The limited inventive examples in the specification does not provide full support of the density range of "0.930 g/cc or more", especially density of larger than 0.96 is not even possible for ethylene polymers.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jorgensen (6,617,405) in view of Jorgensen et al. (4,349,648).

Examples 1-4 of Jorgensen '405 demonstrate gas phase ethylene polymerization process in a fluid bed reactor system in the presence of spray dried Ziegler catalyst prepared by (i) mixing magnesium and titanium tetrachloride in THF to provide a catalyst precursor solution, (ii) adding silica filler to the catalyst precursor solution to form a slurry, (iii) spray drying the catalyst precursor slurry in nitrogen gas at temperature ranging from 140 to 100 °C to provide discrete catalyst precursor particles, (iv) mixing the discrete catalyst precursor particles in mineral oil, and (v) partially activating the catalyst precursor particles with tri-n-hexylaluminum in mineral oil for ½ hour with tri-n-hexylaluminum/THF mole ratio of 0.2, sequentially, activating the partially activated catalyst particles with diethylaluminum chloride for 1 hour with diethylaluminum chloride/THF mole ratio of 0.45 to provide an activated catalyst particles, and (vi) by adding additional amount of triethylaluminum and the partially activated catalyst composition to the reactor and conducting ethylene polymerization in the gas phase reactor. It is noted that in lines 8-42 of col. 3, Jorgensen '405 discloses that in general the activation of the precursor is essentially completed prior to the

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introduction of the precursor into the reactor. In another word, the precursor is partially activated prior to introducing to the polymerization media, and the activation is completed by additional of triethylaluminum added to the polymerization media.

While the time for partially activating the catalyst precursor of Examples 1-4 is longer than 60 minute, Jorgensen '405 does expressly teach that the activation time is depended on the activator used, some time may be required for the activation reaction (col. 6, lines 15-63). Therefore, it would have been obvious for skilled artisan to use minimal amount of the activation time to increase the productivity.

While Jorgensen '405 does not expressly disclose the density of ethylene polymer, Jorgensen '648 teaches that the density of the ethylene polymer is primarily regulated by the amount of comonomer, and ethylene polymer with density in the range of 0.91 to 0.96 can be prepared (col. 2, lines 13-22). Based on the density of ethylene/butene ratio listed in Table 1 of Jorgensen '648, one would have expected that densities of ethylene polymers of Examples 1-4 of Jorgensen '405 would be in the range of the of the instant claims. It would have also been obvious to prepared ethylene polymers with various densities in the range of 0.91 to 0.96 by incorporating different olefins with various amounts to tailor the properties of the ethylene polymer.

Based on the small amount of polymer fines about 1% disclosed in Examples 1-4 of Jorgensen '405 and considering the substantial similarities between the polymerization process of Jorgensen '405 and that of the instant claims, one would have expected that the polymer fines of Jorgensen '405 is at least 10 percent less due to the preactivation process.

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Once a product appearing to be substantially identical is found and a 35 USC 102/103 rejection made, the burden of proof is shifted to the applicant to show an unobvious difference. In re Fitzgerald, 205 USPQ 594. In re Fessmann, 180 USPQ 324. Applicants have not met their burden to demonstrate an unobvious difference between the claimed product and the products of the prior art examples.

5. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jorgensen et al. (6,187,866) in view of Jorgensen et al. (4,349,648).

Analogous rejections as shown above are also applied to Jorgensen et al. (6,187,866); see at least col. 2, line 65 to col. 3, line 32, col. 6, lines 29-50, col. 7, lines 16-20, and Examples 1-8.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached on 9:00 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Caixia Lu, Ph. D.  
Primary Examiner  
Art Unit 1713

